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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,265	01/14/2004	B. Ryland Wiggs	N1076	4898

7590 08/28/2006

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EXAMINER
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ALI, MOHAMMAD M

ART UNIT	PAPER NUMBER
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3744

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/757,265

Applicant(s)

WIGGS, B. RYLAND

Examiner

Mohammad M. Ali

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 63-84 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 63,64,66,68-70,72,74,75,77,79-81 and 83 is/are rejected.
- 7) ☒ Claim(s) 65,67,71,73, 76,78,82 and 84 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Regarding claims 66, 72, 77 and 83 the phrase "an optional" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Objections***

Claims 74-83 and 84 objected to because of the following informalities: The using of word "providing" could be used for method claims but not for system claims. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 63 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiggs et al., (5,671,608) in view of Aoyagi et al., (6,390,183). Wiggs et al., disclose a direct expansion geothermal heat pump except R410A refrigerant. See Abstract. Aoyagi et al., teach the use of R410 refrigerant in a heat exchanger for the purpose of enhancing heat transfer coefficient and to protect ozone layer. See column 6, lines 46-61, column 7, lines 29-45 and column 16, lines 15-39. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the direct expansion geothermal heat pump of Wiggs et al., in view of Aoyagi et al., such that R410 refrigerant could be provided in order to run a direct expansion heat pump system.

Claims 68 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiggs et al., (5,671,608) in view of Brasz et al., (6,892,522). Wiggs et al., disclose a direct expansion geothermal heat pump except working pressure range between 80 psi and 405 psi. See Abstract. Brasz et al., teach the use of a working pressure range between 50 and 180 in a refrigerant heat exchanging cycle for the purpose of enhancing heat transfer coefficient and to protect ozone layer by using HFC refrigerant. See column 6, lines 8-36. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the direct expansion geothermal heat pump of Wiggs et al., in view of Brasz et al., such that a working pressure range

between 50 psi and 180 psi could be provided in order to run a direct expansion heat pump system.

Claims 64 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiggs et al., (5,671,608) in view of Aoyagi et al., (6,390,183) as applied to claim 63 above and further in view of Schooley et al., (6,521,459). Wiggs et al., in view of Aoyagi et al., disclose the invention substantially as claimed as stated above. However, Wiggs et al., in view of Aoyagi et al., do not disclose polyolester oils. Schooley et al., teach the use of polyolester oil as lubricating oil in a climate control system for the purpose of running of the climate control system. See column 3, lines 9-24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the direct expansion geothermal heat pump of Wiggs et al., in view of Aoyagi et al., and further in view of Schooley et al., such that polyolester oil could be provided in order to run a direct expansion heat pump system.

Claims 69 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiggs et al., (5,671,608) in view of Brasz et al., (6,892,522) as applied to claims 68 and 79 above and further in view of Aoyagi et al. Wiggs et al., in view of Brasz et al., disclose the invention substantially as claimed as stated above. However, Wiggs et al., in view of Brasz et al., do not disclose R410 refrigerant. Aoyagi et al., teach the use of R410 refrigerant in a refrigerant heat exchanging cycle for the purpose of enhancing heat transfer coefficient and to protect ozone layer by using HFC refrigerant. See column 6, lines 8-36. Therefore, it would have been obvious to one having ordinary skill

in the art at the time the invention was made to modify the direct expansion geothermal heat pump of Wiggs et al., in view of Brasz et al., and further in view of Aoyagi et al., such that R410 refrigerant could be provided in order to run a direct expansion heat pump system.

Claims 70 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiggs et al., (5,671,608) in view of Brasz et al., as applied to claim 68 and 79 above and further in view of Schooley et al., (6,521,459). Wiggs et al., in view of Brasz et al., disclose the invention substantially as claimed as stated above. However, Wiggs et al., in view of Brasz et al., do not disclose polyolester oils. Schooley et al., teach the use of polyolester oil as lubricating oil in a climate control system for the purpose of running of the climate control system. See column 3, lines 9-24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the direct expansion geothermal heat pump of Wiggs et al., in view of Brasz et al., and further in view of Schooley et al., such that polyolester oil could be provided in order to run a direct expansion heat pump system.


***Allowable Subject Matter***

Claims 65, 67, 71 and 73 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad M. Ali whose telephone number is (571) 272-4806. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
MOHAMMAD M. ALI  
PRIMARY EXAMINER